

## Claims:

1. A moving imager camera comprising:

a first positioning mechanism capable of three-dimensional  
5 movement;

a first imaging device having an imaging surface, the  
first imaging device being mounted upon a surface of the first  
positioning mechanism such that the first imaging device  
moves in concert with motion of the surface of the first  
10 positioning mechanism;

a first measurement system operable to determine a  
position of the first imaging device within an external frame of  
reference defined by three axes X,Y, and Z; and

a first lens having a focal surface and a field of coverage,  
15 the first lens arranged such that the focal surface coincides with  
the imaging surface of the first imaging device, the field of  
coverage of the first lens being larger than the optically  
sensitive area of the imaging surface.

a second positioning mechanism capable of three-dimensional  
20 movement;

a second imaging device having an imaging surface, the second  
imaging device being mounted upon a surface of the second  
positioning mechanism such that the second imaging device moves in  
concert with motion of the surface of the second positioning  
25 mechanism;

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a second measurement system operable to determine a position of the second imaging device in the focal plane; and

a second lens having a focal surface and a field of coverage, the second lens arranged such that the focal surface of the second lens  
5 coincides with the imaging surface of the second imaging device, the field of coverage of the second lens being larger than the optically sensitive area of the imaging surface.

2. A moving imager camera as recited in claim 1 further  
10 including a control system operable to control motion of the first and second positioning mechanisms.

3. A moving imager camera as recited in claim 2 wherein  
15 the control system includes a first controller arranged to control the first positioning mechanism and a second controller arranged to control the second positioning mechanism.

4. A moving imager camera as recited in claim 1 further  
20 comprising an alignment mechanism operable to align the first and second imaging devices into substantially the same plane.

5. A moving imager camera as recited in claim 1 wherein  
the alignment mechanism includes a laser diode disposed within the first positioning mechanism and aimed at a mirror disposed within the  
25 second positioning mechanism, and a light sensor disposed within the

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first positioning mechanism, such that when the first and second positioning mechanisms are aligned into substantially the same plane, a beam of light generated by the laser diode will reflect off the mirror and return for measurement and optimization at the light sensor.